

**REMARKS**

This supplemental amendment is filed to make of record further information which was presented to the examiner during the telephonic interview and which is pertinent to the present response to the Office Action.

A mini-breakdown is a premature localized electrical breakdown of the BOX in the vicinity of a crystalline silicon precipitate inside the BOX of a SIMOX wafer. (U.S. Patent No. 6,528,335 issued March 4, 2003; col. 1 ll.38-60; col.2 ll.26-27). When the BOX layer of a SIMOX wafer is tested for mini-breakdowns, such as by applying a voltage and current across the BOX, the mini-breakdown is self-healing, due to local vaporization of the silicon inclusion. (col.4 ll.42-46). A first mini-breakdown voltage is the lowest voltage at which mini-breakdown occurs when testing using an upwardly ramping voltage. (col.4 ll.10-36). The problem is that mini-breakdowns do not occur only during testing. Mini-breakdowns can also occur when certain processes such as plasma processing, reactive ion etching and possibly others are performed on the SIMOX SOI wafer. (col. 4 l.61-col.5 l.8). Mini-breakdowns during such processing are not self-healing because there is no controlled voltage and current applied to the SOI wafer after the breakdown. (*Id.*) Thus, a wafer as recited in claim 1 in which the BOX layer has a greater first mini-breakdown voltage is quantifiably better able to withstand wafer processing.

It is believed that the greater first mini-breakdown voltage of the SOI substrate recited in claim 1 is due to the smaller size of silicon islands that become included in the BOX layer during its formation, since the occurrence of mini-breakdowns is related to silicon precipitates in the BOX (*Id.* at col. 1 ll.46-55). FIG. 6 and paragraph

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[0029] of the present application demonstrate that the claimed process results in smaller silicon islands being included in the BOX.

In view of the amendments and remarks herein, it is believed that all claims of the application are now in condition for allowance. However, if for any reason the Examiner does not believe that such action can be taken at this time, the Examiner is requested to telephone the applicants' attorney at the number indicated below to discuss any issues that may remain.

It is believed that no fee is due in connection with this amendment. However, if any fee is due is granted to debit the Deposit Account No. 09-0458 of the Assignee. If there is an overpayment, please credit the same account.

Respectfully submitted,  
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